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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,557	11/10/2003	Terrel L. Morris	200206282-2	5480

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FORT COLLINS, CO 80527-2400

EXAMINER
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CHERVINSKY, BORIS LEO

ART UNIT	PAPER NUMBER
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2835

DATE MAILED: 06/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/705,557

Applicant(s)

MORRIS, TERREL L.

Examiner

Boris L. Chervinsky

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 7, 8-12, 14, 21, 26-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Taylor.

Taylor discloses a system comprising a first component 14, 25 that generates heat; and a second component 12, 31 that is thermally connected to the first component; wherein the heat from the first component is transferred to a coolant through the second component, and the second component has a function in the system associated with an operation of the system other than transferring heat; the second component directly interacts with the coolant, the first component comprises a plurality of first components 25, each of which generates heat; the second component comprises a plurality of second components 31, each of which has an respective function in the system that is associated with a respective operation of the system; the second component 12 comprises a cooling solution 40 for transferring heat to the coolant, the coolant is air; the second component operates as a heat sink fin for the at least one component; the second component 31 is connected to one side of the board 14 and the first component 25 is connected to another side of the board; the first board 14 that supports the first component 25; and a second board 12 supports the second component 31 and is

Art Unit: 2835

thermally connected to the second component 25, and is connected to the first board 14, wherein a portion of the second board is thermally connected to the first component; the second board 12 is removably attached to the first board 14; the first board 14 and the connected second board 12 are removably connected to the system; a conformal thermal transfer material 30 located between the second board and the first component; a plurality of devices 31, 21 that are attached to the second board are connected to vias 34 in the second board, the vias 34 conduct heat from the at least one component. The method steps of claims 26 and 27 are necessitated by the device structure as disclosed by Taylor. Regarding to claim 28, Taylor discloses a first portion 22 for connecting a first component that has a function associated with an operation of the system other than transferring heat; a second portion 30 for thermally connecting a second component 31 that generates heat; a third portion 26 for connecting the first portion to the system, thereby enabling the function of the first component and a thermal conduction path between the first portion and the second portion, whereby heat from the second component 31 can be transferred to the first component, and the heat is transferred directly from the first component to a coolant for dissipation.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2835

4. Claims 5, 6, 13, 18, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor.

Taylor discloses the claimed invention except components being various memory modules, or an I/O controller, or a cache chip, or crossbar chip. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use these components in the device disclosed by Taylor since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Taylor also does not disclose a ball grid array, which is well known and commonly used method of attaching a component to a circuit board, therefore it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use ball grid array in the device disclosed by Taylor for securely mounting components on a circuit board.

5. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor in view of Rishworth et al.

Taylor discloses the claimed invention except having components to be mounted on the circuit board at 45 or 90 degree angle. Rishworth discloses the device having components attached to the circuit board at 45 or 90 degree angle. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to mount components at 45 or 90 degree angle as disclosed by Rishworth in the device disclosed by Taylor for compactness of the arrangement.

Art Unit: 2835

***Allowable Subject Matter***

6. Claims 15-17, 23-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Double Patenting***

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-29 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Patent No. 6,711,021. Although the conflicting claims are not identical, they are not patentably distinct from each other because the added limitation in the claims that the second component directly interacts with the coolant since it is considered obvious.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Boris L. Chervinsky whose telephone number is 571-272-2039. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on 571-272-2800 ext. 35. The fax

Art Unit: 2835

phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**BORIS CHERVINSKY**  
**PRIMARY EXAMINER**

*Boris I. Chervinsky*  
6/16/4